What is claimed is:

1. A single sign-on system for a web site, comprising:

an user authentication proxy unit between a user terminal
and a web server for performing user authentication operations
required for the web site, said user terminal accessing the

5   web server over the Internet,

wherein said user authentication proxy unit comprises
means for recording data required for performing user
authentication operations, and

wherein said user authentication proxy unit performs user

10   authentication operations for the web site specified by the
user terminal to reduce user authentication operations on the
user terminal.

2. The single sign-on system for a web site according to claim
1, wherein, when a user is authenticated, said user
authentication proxy unit saves data transferred between the
user terminal and the web server into storage means and, when

5   the user authentication operations are performed on behalf of
the user terminal, the data stored in said storage means is
reused.

3. A single sign-on system for a web site, comprising:

a user authentication proxy unit between a user terminal
and a web server, said user terminal accessing the web server
over the Internet,

5   wherein said user authentication proxy unit comprises:
means for saving information in storage means for use

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as information associated with a sequence of user authentication

processes executed by a user between the user terminal and the

web server over the Internet, said information being a

10 combination of three data pieces, that is, a URL (Uniform

Resource Locator) of a web site, data received by the user

terminal from the web server for user authentication, and data

sent by the user terminal to the web server for user

authentication; and

15 means for sending a connection request to the web server

specified by the URL when the user uses any user terminal to

specify the URL of the web site, for comparing, when data on

the URL is received from the web server, the received data with

data saved in advance in said storage means, and, if a match

20 is found, for sending user authentication sending data saved

in advance in the storage means to the web server on behalf

of the user terminal instead of transferring to the user terminal

the data received from the web server.

4. A user authentication proxy unit provided between a user

terminal and a web server, said user terminal accessing the

web server over the Internet, comprising:

means for saving information in storage means for use

5 as information associated with a sequence of user authentication

processes executed by a user between the user terminal and the

web server over the Internet, said information being a

combination of three data pieces, that is, a URL (Uniform

Resource Locator) of a web site, data received by the user

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10   terminal from the web server for user authentication, and data

sent by the user terminal to the web server for user

authentication; and

means for sending a connection request to the web server

specified by the URL when the user uses any user terminal to

15   specify the URL of the web site, for comparing, when data on

the URL is received from the web server, the received data with

data saved in advance in said storage means, and, if a match

is found, for sending user authentication sending data saved

in advance in the storage means to the web server on behalf

20   of the user terminal instead of transferring to the user terminal

the data received from the web server.

5.   A user authentication proxy unit provided between a user

terminal and a web server, said user terminal accessing the

web server over the Internet, comprising:

a storage unit which comprises:

5   a proxy user authentication data storage unit that

stores therein a user identifier uniquely identifying a user

and a password, said user identifier and said password being

required for confirming that the user using said user

authentication proxy unit is an authorized user; and

10   a web site user authentication data storage unit

that stores therein combinations of data, each of said

combinations being composed of a user identifier uniquely

identifying a user, a URL of a web site, data received by the

user terminal from the web server for user authentication, and

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15   data sent by the user terminal to the web server for user

        authentication,

                proxy user authenticating means for authenticating,

        using data saved in said proxy user authentication data storage

        unit, whether the user is an authorized user of said user

20   authentication proxy unit;

                URL saving means for saving a combination of the URL of

        the web site and the user identifier in said web site user

        authentication data storage unit, said web site being a web

        site for which a user has asked said user authentication proxy

25   unit to perform user authentication operations, said user

        identifier uniquely identifying the user;

                received data saving means for saving the data, received

        by the user terminal from the web server for user authentication,

        into said web site user authentication data storage unit;

30   sending data saving means for saving the data, sent by

        said user terminal to the web server for user authentication,

        into said web site user authentication data storage unit;

                URL comparing means for comparing a URL specified by the

        user on the user terminal with the URL saved in the web site

35   user authentication data storage unit to determine if the URL

        specified by the user is the one for which said proxy user

        authentication unit is to perform user authentication

        operations;

                received data comparing means for comparing data received

40   from the web server to which a connection is made using the

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URL specified by the user with the received data saved in said

web site user authentication data storage unit; and

surrogate authentication operation data sending means

which, if said web site user authentication data storage unit

45   stores therein a matching combination of the user identifier,

URL, and received data from the web server, judges that user

authentication operations may be performed on behalf of the

user terminal, obtains corresponding sending data from said

web site user authentication data storage unit for performing

50   user authentication operations, and sends the obtained data

to the web server.

6.   A method for performing user authentication operations for

a web site on behalf of a user,

wherein a user authentication proxy unit is provided

between a user terminal and a web server for performing user

5   authentication operations required for the web site, said user

terminal accessing the web server over the Internet,

wherein said user authentication proxy unit records data

required for performing user authentication operations, and

wherein said user authentication proxy unit performs user

10   authentication operations for the web site, whose URL is

specified by the user, regardless of a type of the user terminal.

7.   The method for performing user authentication operations

for a web site on behalf of a user according to claim 6, wherein,

when the user is authenticated, said user authentication proxy

unit saves data transferred between the user terminal and the

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5   web server and, when the user authentication operations are

performed on behalf of the user, the saved data is reused.

8. A method for performing user authentication operations for

a web site on behalf of a user, wherein a user authentication

proxy unit is provided between a user terminal and a web server,

said user terminal accessing the web server over the Internet,

5   said method comprising the steps of:

saving information in storage means for use as information

associated with a sequence of user authentication processes

executed by a user between the user terminal and the web server

over the Internet, said information being a combination of three

10   data pieces, that is, a URL (Uniform Resource Locator) of a

web site, data received by the user terminal from the web server

for user authentication, and data sent by the user terminal

to the web server for user authentication;

sending a connection request to the web server specified

15   by the URL when the user uses any user terminal to specify the

URL of the web site;

when data on the URL is received from the web server,

comparing the received data with data saved in advance in said

storage means and, if a match is found, sending user

20   authentication sending data saved in advance in the storage

means to the web server on behalf of the user terminal instead

of transferring to the user terminal the data received from

the web server.

9. A recording medium storing thereon a program for use on

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a user authentication proxy unit provided between a user terminal and a web server, said user terminal accessing the web server over the Internet, said program causing a computer on the user authentication proxy unit to:

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(a) save information in storage means for use as information associated with a sequence of user authentication processes executed by a user between the user terminal and the web server over the Internet, said information being a combination of three data pieces, that is, a URL (Uniform Resource Locator) of a web site, data received by the user terminal from the web server for user authentication, and data sent by the user terminal to the web server for user authentication; and

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(b) send a connection request to the web server specified by the URL when the user uses any user terminal to specify the URL of the web site, compare, when data on the URL is received from the web server, the received data with data saved in advance in said storage means, and, if a match is found, send user authentication sending data saved in advance in the storage means to the web server on behalf of the user terminal instead of transferring to the user terminal the data received from the web server.

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10. A recording medium storing thereon a program for use on a user authentication proxy unit provided between a user terminal and a web server, said user terminal accessing the web server over the Internet, said user authentication proxy unit

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5   comprising:

a proxy user authentication data storage unit that stores
therein a user identifier uniquely identifying a user and a
password, said user identifier and said password being required
for confirming that the user using said user authentication
10   proxy unit is an authorized user; and

a web site user authentication data storage unit that
stores therein combinations of data, each of said combinations
being composed of a user identifier uniquely identifying a user,
a URL of a web site, data received by the user terminal from
15   the web server for user authentication, and data sent by the
user terminal to the web server for user authentication,

said program causing a computer on the user authentication
proxy unit to:

(a) authenticate, using data saved in said proxy user
20   authentication data storage unit, whether the user is an
authorized user of said user authentication proxy unit;

(b) save a combination of the URL of the web site and
the user identifier in said web site user authentication data
storage unit, said web site being a web site for which a user
25   has asked said user authentication proxy unit to perform user
authentication operations, said user identifier uniquely
identifying the user;

(c) save the data, received by the user terminal from
the web server for user authentication, into said web site user
30   authentication data storage unit;

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(d) save the data, sent by said user terminal to the web server for user authentication, into said web site user authentication data storage unit;

(e) compare a URL specified by the user on the user terminal with the URL saved in the web site user authentication data storage unit to determine if the URL specified by the user is the one for which said proxy user authentication unit is to perform user authentication operations;

(f) compare data received from the web server to which a connection is made using the URL specified by the user with the received data saved in said web site user authentication data storage unit; and

(g) if said web site user authentication data storage unit stores therein a matching combination of the user identifier, URL, and received data from the web server, judge that user authentication operations may be performed on behalf of the user terminal, obtain sending data required for performing user authentication operations on behalf of the user terminal from said web site user authentication data storage unit, and send the obtained data to the web server.

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